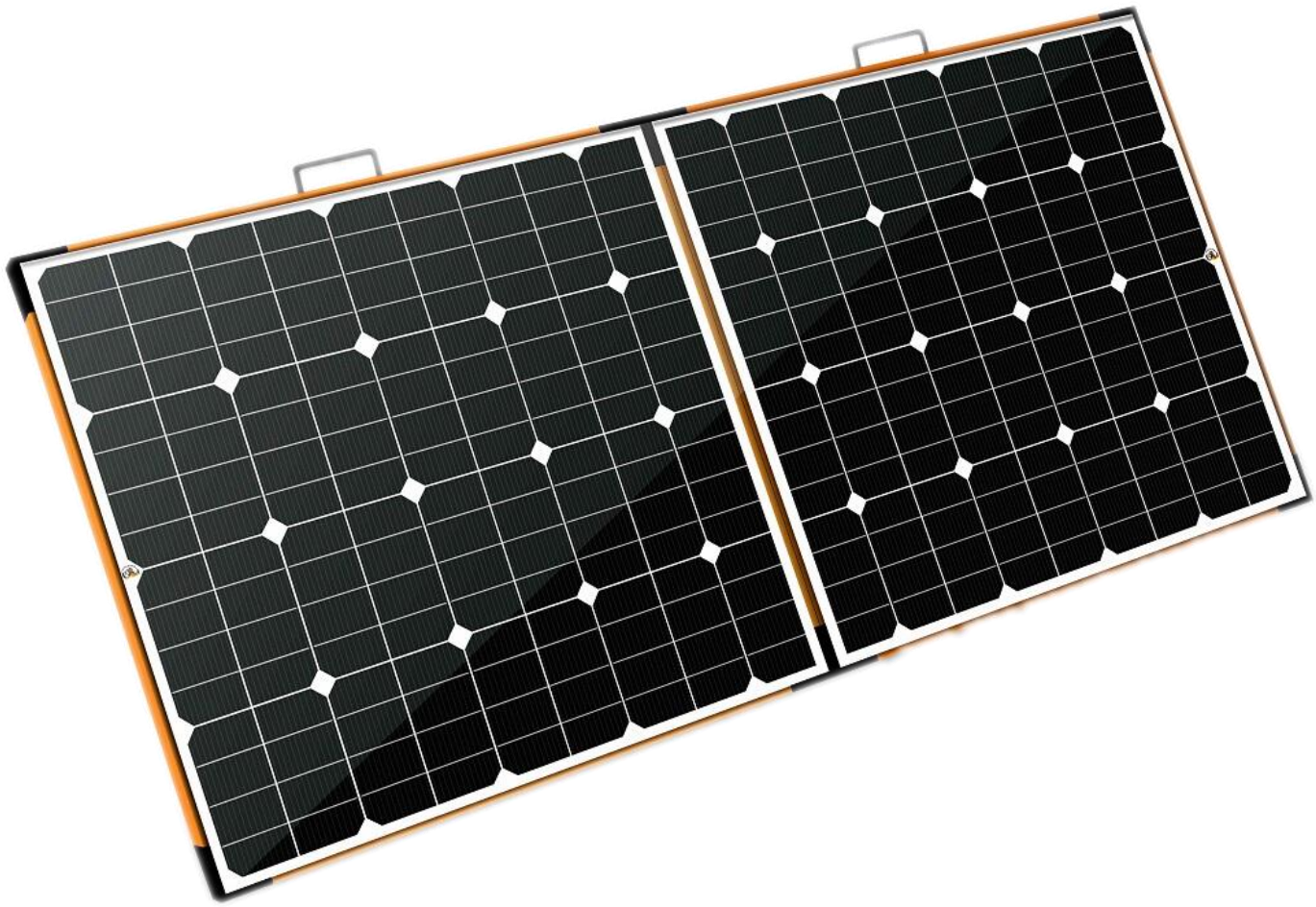
ANTENERGY®

Powered By BOSCH Cells Portable Solar Panel Kit



User Manual and Product Specifications

IMPORTANT

Read instructions before operation.

www.antenergy.com.au

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Getting to know your Portable Solar Panel Kit

Suitable for

- Caravan / Motohome
- Camping
- Farm Charger
- 12V Fridges
- Lights
- TV's & DVD's
- Inverters to run 240V appliances
- Set up anywhere
- Easy to Use
- Ready to go

Kit Includes

- Folding 2 x 90w (AEMFS2-B180) or 3 x 90w (AEMFS2-B270) Germany BOSCH® cells mono-crystalline silicon solar panels with heavy duty aluminium frame.
- 20A ANTENERGY® waterproof automatic smart charge regulator with LED (blue/red) indications.
- 10 metre 40A lead with heavy duty male/female MC4 solar connectors and alligator battery clamps
- Waterproof Protective Carry Bag
- Heavy duty stainless steel handle.
- Adjustable solid aluminium support legs.
- Anti-slip rubber feet.
- Heavy duty quality rust proof aluminium anodized finish aluminium hinges.
- Connection cable between the left solar panel & the regulator.
- Connection cable between the right solar panel & the regulator.
- Individual Solar panel junction box
- Instruction manual.

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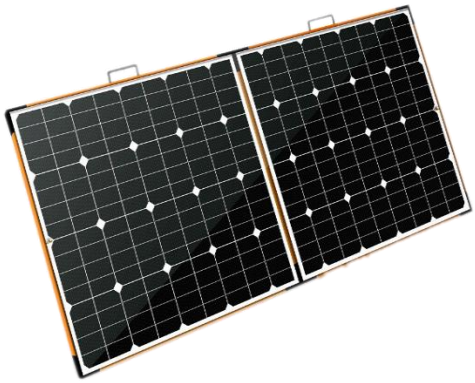
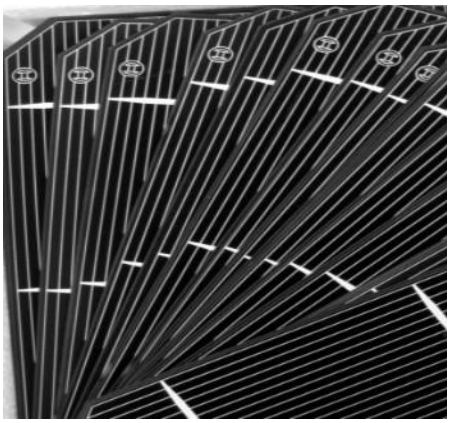
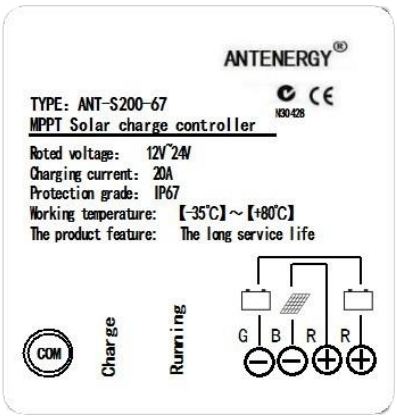
Product photos







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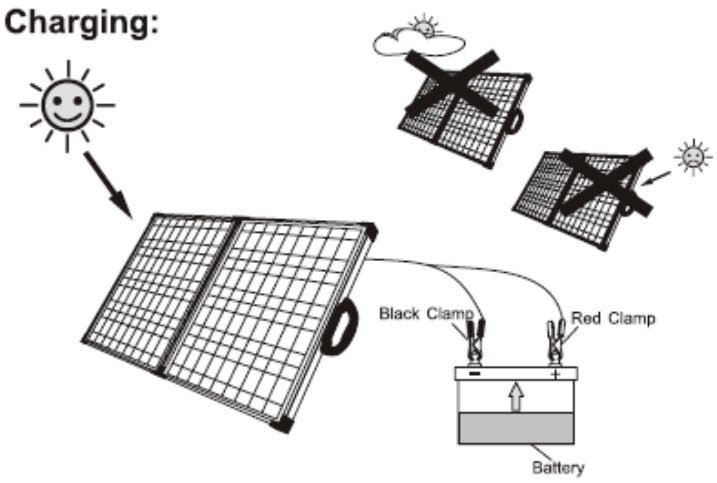
Installation & connection

Step 1:

Locate the solar panel in the best position.

Open the folding solar panels & place them at a position that has direct contact with sunlight, face the solar panel to the sun. Tilt the solar panels at a proper angle for maximum sun exposure. Angle can be the same as your local latitude. Angle can be adjusted to different position along the support legs.



Step 2:

1. Diagram 1, Connect to the battery. Battery type by automatic switch from the regulator. Connect the clamps, be sure to connect with correct terminal (for example, Red clamp to the positive + terminal and Black clamp to the negative - terminal).

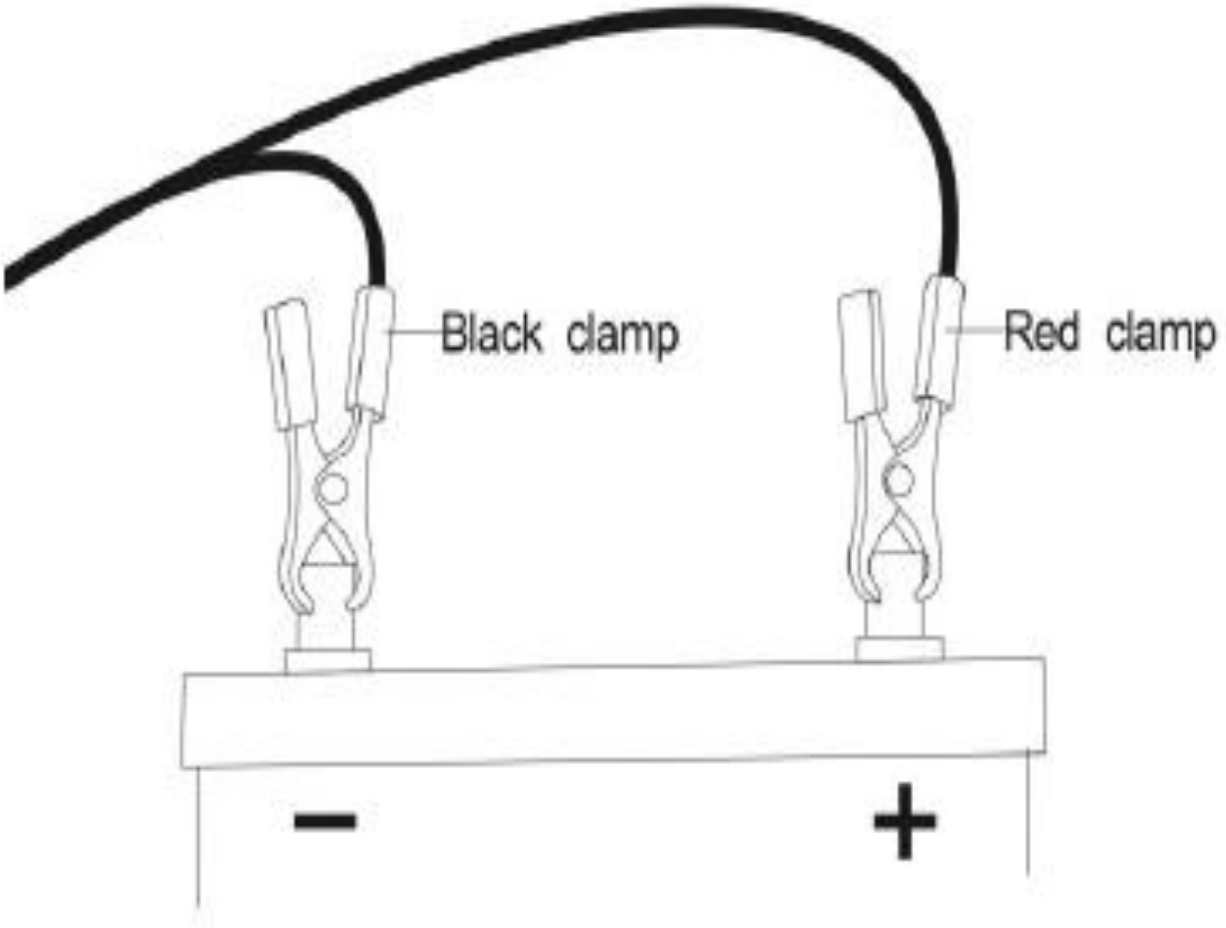


*Diagram 1

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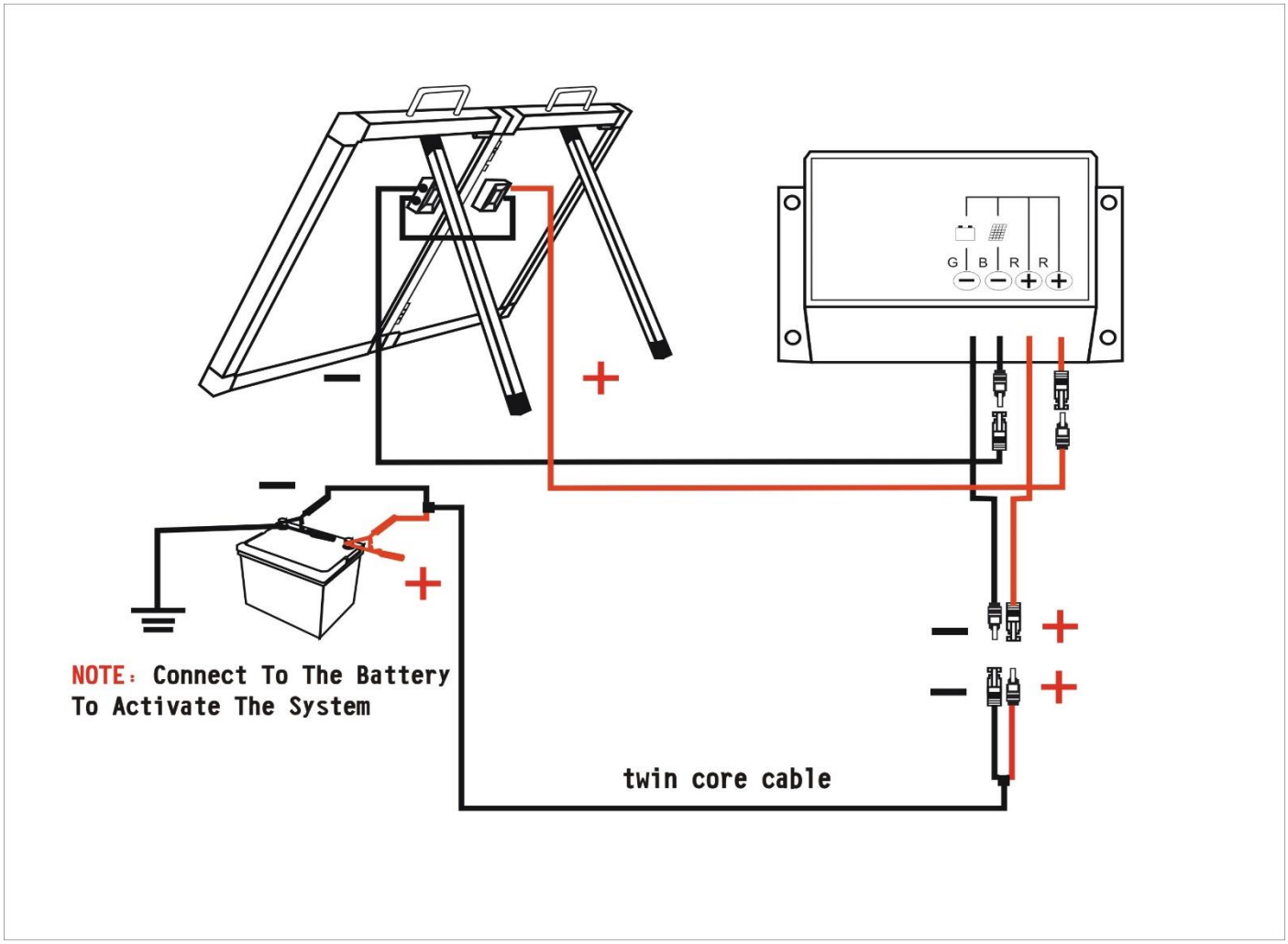
2. Diagram 2, connect the negative - MC4 solar connectors with the 10 metre lead to the first negative - MC4 solar connectors (code G, green lead) from the regulator, then connect the positive + MC4 solar connectors with the 10 metre lead to either one of the positive + MC4 connectors (code R, red color lead) from regulator.
3. Diagram 2, connect the negative - MC4 solar connectors with junction box lead to the second negative - MC4 solar connectors (code B, black color lead) from regulator, then connect the positiveMC4 solar connectors with junction box lead to either one of positive + MC4 connectors (code R, red color lead) from regulator.

Model: AEMFS2-B180



* Diagram 2

Important Information:

When the solar panel kit is first connected to a battery & exposed to the sun the charge controller must undertake a self–check program to ensure that it is operating correctly.

This program will take approximately 2 minutes to complete and during this time the LED's on the charge controller will not be illuminated and the battery will not be receiving any charge. Once the self-check is completed the system will engage and commence the charging process.

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Model: AEMFS2-B270

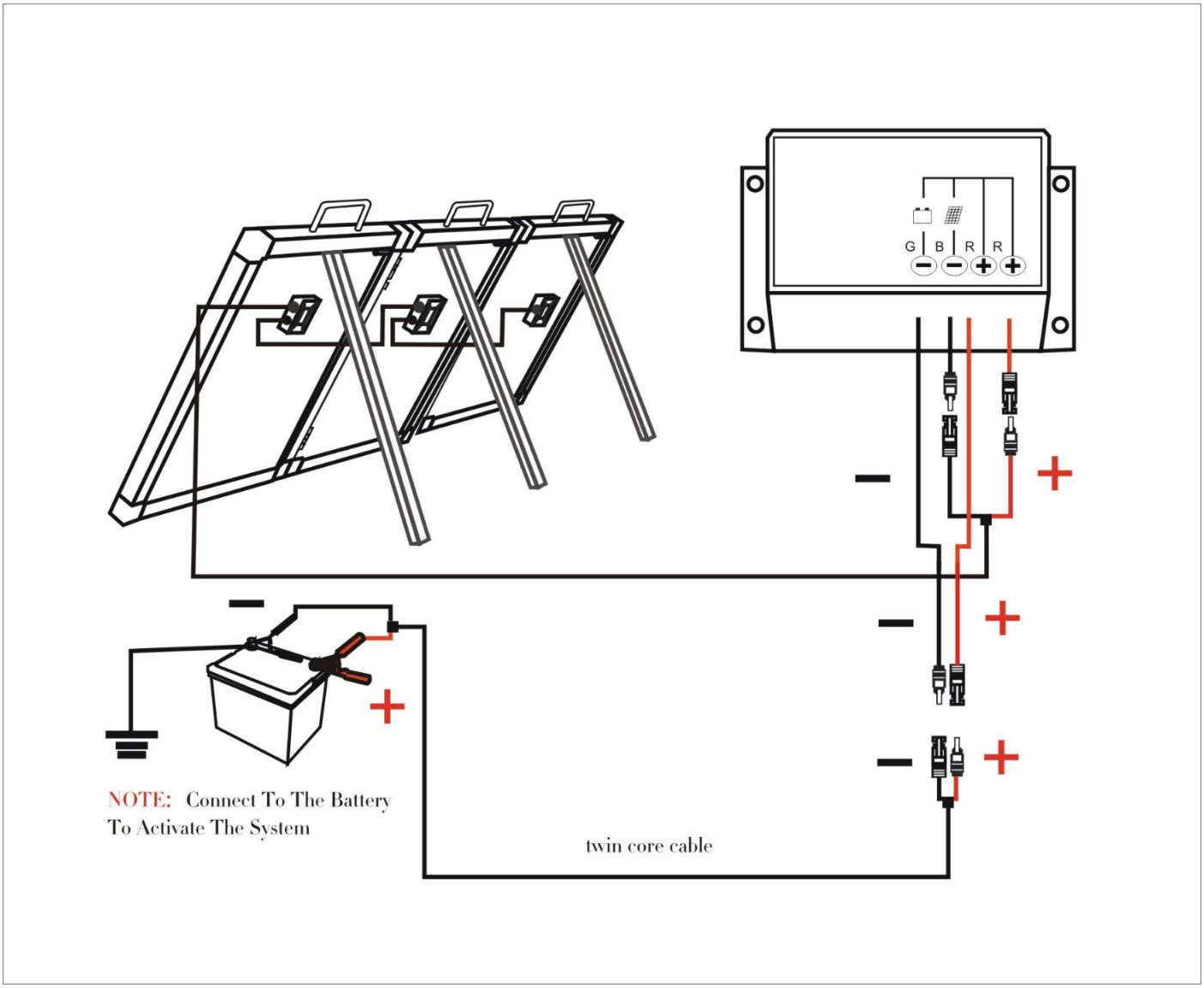

*Diagram 3

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Features

Solar Panels

- ANTENERGY® 20A 12/24V waterproof automatic smart charge regulator with LED (blue/red) indications. The smart controller input voltage is 10V-30V while output is 12-30V while output is 12/24V. It delivers extra 10% - 30% power than normal regulator.
- The solar charging system will cut off automatically when the battery is fully charged, over charged, reversed polarity or solar panels discharged.
- Automatic select between Lead Acid and Gel Cell battery charging modes.
- BOSCH exclusive 3 busbar 36 high-efficiency mono-crystalline Solar Cells(unlike the low efficient panel with over 36 pieces cells)
- Highest Efficiency of nearly 19% which is higher than any commercially available panel of similar size.
- Panels built with waterproof standard junction box which is Pre-cabled with fast-connecting systems with ultra-reliable bypass diodes
- High Quality Hail Proof Panels with Low iron tempered refraction glass
- Fold away support leg. The kit features a unique folding system which is very easy to open and close. Innovative angle adjusted support legs place the solar panels at an angle for maximum sun exposure and therefore maximum power output.
- Attractive, stable & heavy duty anodized aluminium frames with low wind resistance design
- Anti-slip rubber protectors on every corner
- Reduced Installation Cost & More power per panel means fewer panels per install. This saves both time and money.
- The backside frames are equipped with drainage holes. So we eliminate the risk that rain or snow water may accumulate in the frame lumen and freeze or even bend the frame in cold season
- Customer-desired packing to minimize damage during transit.
- Australian C-tick approval N30428
- Meeting highest international standards: ISO 9001 and ISO14001 and certified with TUV, IEC61215, IEC61730, CE and UL

Regulator LED Features:

- Red Flashing only: Panel is out in the sun & no load is connected, you will not get a constant voltage from testing the leads
- Red flashing & Blue flashing: Battery is connected & the charger is in charging mode. (batteries are below full charge & the regulator is supplying full voltage)
- Red flashing & Blue constant: Batteries are connected & the charger had reached a float/pulse mode. (batteries area fully charged & the regulator is floating the voltage)

Regulator Functions:

- Battery Overcharge and charge protection
- Battery Open-circuited protection
- Load Over-voltage protection
- Reversed charge protection at night
- Current and short circuit protection
- Solar Cells Reversed protection
- Over-voltage protection: when the voltage is higher, the output will shut-off automatically to protect appliances

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Specifications

Model	AEMFS2-B180	AEMFS2-B270
Brand	ANTENERGY SOLAR	ANTENERGY SOLAR
Solar cells	BOSCH 3BB Mono-Crystalline	BOSCH 3BB Mono-Crystalline
Power	180Wp(2 x 90Wp)	270Wp(3 x 90Wp)
Product Dimension	(L x W x H) 151.6cm x 67cm x 3.2cm (open) approx. (L x W x H) 75.8cm x 67cm x 6.8cm (fold) approx.	(L x W x H) 227.4cm x 67cm x 3.2cm (open) approx. (L x W x H) 75.8cm x 67cm x 9.6cm (fold) approx.
Maximum Power Voltage (Vmp):	17.56V	17.56V
Maximum Power Current (Imp):	10.30A	15.45A
Open Circuit Voltage (Voc):	21.96V	21.96V
Short Circuit Current (Isc):	11.9A	11.9A
Module Efficiency:	19% approx	19% approx
Total Number of Cells:	72pcs	108pcs
Production Tolerance (+-):	5%	5%
Maximum System Voltage	700VCD	700VCD
Temp. Coeff of Isc (TK Isc):	0.058%/C	0.058%/C
Temp. Coeff of Voc (TK Voc):	-3.76%/C	-3.76%/C
Temp. Coeff. of Pmax (TK Pmax):	-0.503%/C	-0.503%/C
Normal Operating Cell Temperature	44.4 +-2%/C	44.4 +-2%/C
Frame (Material, Corners,etc):	Heavy Duty Anodized Aluminium	Heavy Duty Anodized Aluminium
Length of Charging Cable	1000mm	1000mm
Temperature Range	-40C ~ +85C IP65	-40C ~ +85C IP65
Surface Maximum Load Capacity	60m/s (200kg/sq/m)	60m/s (200kg/sq/m)
Allowable Hail Load	Steel Ball Falls Down from 1M Height	Steel Ball Falls Down from 1M Height
Standard Test Condition	AM1.5 1000W/m2 25 C	AM1.5 1000W/m2 25 C
Package Dimension (L x W x H)	155cm x 70cm x 5cm approx.	155cm x 70cm x 10cm approx.
Package Weight	14kg approx.	20kg approx.

Battery Type

- 12V lead acid batteries
- GEL batteries
- AGM Deep Cycle batteries

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Commonly asked questions

Q. How does the solar panel work?

A. The solar panel converts sunlight energy into DC electric power and can charge a rechargeable battery which supplies power to operate the appliance load. Daytime charging for day and night time use.

Q. How many solar panel will it take to run my…?

A. Power (watts) = current (amps) X voltage, watts X hours = watt hours.

As a general rule, a user should establish the watts required to run the appliances and multiply them by the expected consumption hours.

After these calculations, the capacity of the solar panels can be established. For example, if the power load is 457 watt hours per day & the solar panel is allowed for 6 hours of suitable sunlight, the solar panel would be 76.17 watts.

Q. How much battery capacity is required?

A. Current (amps) x hours = amp hours.

Solar power systems are generally sized to give plenty of reserve (autonomy) in the batteries. Power usage should only be 20% per day of your battery capacity. For example, if the power load is 37.32 amps/hours per day, the minimum battery capacity recommended would be 186.6 amps/hour.

Consumption Calculator

APPLIANCE	WATT	AMPS	HRS	WATT HRS	AMP HRS
12V FLUORESCENT LIGHT	8	0.6	4	32	2.4
12V RADIO	5	0.4	1	5	0.4
12V FAN	4	0.25	5	20	1.25
12V TRAVEL IRON	120	10	1/6	20	1.67
12V FRIDGE	45	1.5	8	360	12
ESTIMATED CONSUMPTION				457	17.72

*Figures are estimation only. Consult manufacturers specifications and recommendations first.

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Troubleshooting

Solar panels & solar regulators are maintenance-free and there are no user-serviceable parts in this unit. If you have any problems, please check the unit as follows or contact with the suppliers:

Problem	Remedy
Only Red charge LED flashing but doesn't glow in blue	Check if sunlight gets the solar panels.
	Check if the connect wires between the solar panels & the solar regulator are damaged/connected.
	Check if the connect wires between the battery & the solar regulator are damaged/connected.
	Check if the battery voltage is less than 10.6V. If the battery voltage is less than 10.6V, the regulator can not work.
	Other following situations: Battery poles +/- are reversed or short circuit. - Solar regulator output current over 20A.
The charge LED doesn't glow in Red and Blue	Check if the battery isn't connected.
	Check if the battery is bad condition.
Output voltage is only approx. 1.5V	Check if the 10m lead is connected to battery, otherwise the regulator is in safe model and not in activation status.
	Check if the battery is already fully charged
Output voltage is higher than 14.5V	Regulator is in pulse charging stage and battery is fully charged
	Check if the battery is lessor than 40AH

*If appliance is still not functioning correctly, contact Antenergy Australia's Customer Service for trouble shooting assistance or your nearest authorised service agent.

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Warranty & Repairs

Customer Service Policy

Antenergy Solar is committed to providing exceptional customer service and quality products. Our products meet all government and international regulations.

Warranty

Our solar products come with a 25 year output guarantee on all solar panels, 2 years warranty on all regulators. (10 years at 90% efficiency and 25 years at 80% efficiency)

Repairs

For repairs please contact Antenergy Solar directly on 03 8806 1629 or contact us via email.

Exchange Service

You can choose between a refund, exchange or credit where goods are faulty or doesn't do what is is supposed to do. We will exchange faulty products and liaise directly with manufacturer on behalf of our customers.

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